

LONDON- WEST MIDLANDS ENVIRONMENTAL STATEMENT

Volume 5 | Technical Appendices

CFA18 | Stoneleigh, Kenilworth and Burton Green

Data appendix (AQ-001-018)

Air quality

November 2013

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Department
for Transport

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1 Introduction

1.1.1 The air quality appendices for the Stoneleigh, Kenilworth and Burton Green community forum area (CFA18) comprise:

- discussion of the policy framework (Section 2);
- baseline air quality data (Section 3);
- dust impact evaluation and risk rating (Section 4); and
- air quality assessment – road traffic (Section 5).

1.1.2 Maps referred to throughout the air quality appendix are contained in the Volume 5 air quality map book.

2 Policy framework

- 2.1.1 Warwickshire County Council (WCC) works with the five districts and borough councils (North Warwickshire Borough Council, Nuneaton and Bedworth Borough Council, Rugby Borough Council, Stratford-on-Avon District Council and Warwick District Council) within Warwickshire to address transport related air quality issues.
- 2.1.2 The Warwickshire Local Transport Plan¹, covering the period 2011-026, includes an air quality strategy, which outlines a number of policies aimed at improving air quality across the county. The major themes of the air quality strategy are:
- to improve areas with poor air quality and maintain those areas that currently experience good air quality;
 - to encourage sustainable forms of transport, which reduce reliance on private cars and minimises emissions to air; and
 - to promote awareness of alternative travel choices.
- 2.1.3 Policy AQA2 of the local transport plan air quality strategy, Improving Poor Air Quality through Partnership Working, is concerned with the preparation of air quality action plans (AQAP) and the implementation of traffic management improvements within air quality management areas (AQMA) and wider initiatives to change travel behaviour to encourage walking, cycling and the greater use of public transport.
- 2.1.4 Policy AQA3 of the local transport plan air quality strategy, Maintaining Areas of Good Air Quality, indicates that the lorry route map for Warwickshire will be reviewed every two to three years. This is potentially relevant to heavy duty vehicle (HDV) movements associated with the construction phase of the Proposed Scheme.
- 2.1.5 Policy AQ5 of the local transport plan air quality strategy, Integration of Air Quality and Transport Planning, states that the WCC will provide input to the preparation of district or borough council local development frameworks and to individual planning applications to negotiate appropriate air quality and transport improvements.
- 2.1.6 The local planning authorities for the land within the Stoneleigh, Kenilworth and Burton Green area are WDC, CCC and SMBC. The relevant adopted local plans for the Stoneleigh, Kenilworth and Burton Green area are therefore the Warwick District Local Plan 2007², the City of Coventry Unitary Development Plan 2001³ and the Solihull Unitary Development Plan 2006⁴.
- 2.1.7 The saved policies of the Warwick District Local Plan 2007 form the adopted policy for the purposes of development management. Objective 2F is “to protect and improve air quality”⁵ and there are several policies that reflect this objective.

¹ Warwickshire County Council (2010/2011), *Warwickshire Local Transport Plan 2011-2026*.

² Warwick District Council (2007), *Warwick District Local Plan 1996-2011*.

³ Coventry City Council (2001), *The Coventry Development Plan 2001 – The City of Coventry Unitary Development Plan 1996-2011*.

⁴ Solihull Metropolitan Borough Council (2006), *Solihull Unitary Development Plan 2006 – Written Statement*.

⁵ Warwick District Council (2007), *Warwick District Local Plan 1996-2011*. Core Strategy P27.

- 2.1.8 *Policy DP9* of the Warwick District Local Plan, *Pollution Control*, is the principal policy of relevance to air quality. The policy expects development proposals to avoid giving rise to soil contamination, air, noise, radiation, light or water pollution where the levels of discharge or emissions would cause harm to sensitive receptors.
- 2.1.9 *Policy DP2* of the Warwick District Local Plan, *Amenity*, is not specific in citing the causes of potential impacts on amenity, but states that development that would have an unacceptable impact on the amenity of nearby users and residents will not be permitted.
- 2.1.10 The WDC New Local Plan Preferred Options⁶ was consulted upon from June to July 2012. The council intends to submit the New Local Plan to the Secretary of State for examination and public hearings in 2013. It is noted that the Proposed Scheme and its effects on the area, were identified by WDC in its preferred options consultation as a key issue.
- 2.1.11 The preferred options set out the WDC's intentions for the future drafting of policy. In the latest version of the local plan, there are no policies specifically for air quality. Of indirect relevance is *PO14, Transport*, which expects that development proposals will ensure there is mitigation against the negative transport impacts such as the impact on air quality.
- 2.1.12 The saved policies of the Coventry Unitary Development Plan⁷ provide the framework for planning decision-making in the area. Policy EM2, Air Quality, states that "where likely damage to air quality cannot be satisfactorily mitigated, development will not be permitted"⁸.
- 2.1.13 *Policy EM5, Pollution Protection Strategy*, states that "proposals which could result in pollution of air, water or ground ... will only be permitted if the health, safety and amenity of the users of the land and the neighbouring land and the quality and enjoyment of the environment are assured"⁹.
- 2.1.14 CCC consulted on its Core Strategy Proposed Submission July 2012¹⁰ document from July to September 2012. CCC submitted the core strategy with minor amendments (made in October 2012) to the Secretary of State for examination on 29th October 2012. Adoption is anticipated during 2013.
- 2.1.15 *Policy EM9, Air Quality*, is directly relevant. The policy promotes the use of sustainable low emission transport in major development schemes, in order to minimise the impact of vehicle emissions on air quality. This is particularly important as Coventry has designated an AQMA for its whole administrative area, and all major development proposals will have to demonstrate that they do not adversely impact on air quality.
- 2.1.16 CCC's supplementary planning document (SPD), *'Delivering a More Sustainable City'*¹¹, includes air quality as one of seven key sustainability themes and states that "all major

⁶ Warwick District Council (2012), *Warwick District Council New Local Plan Preferred Options*.

⁷ Coventry City Council (2007), *The Coventry Development Plan 2001 – The City of Coventry Unitary Development Plan 1996-2011*. List of Saved Policies published September 2007.

⁸ Coventry City Council (2001), *The Coventry Development Plan 2001 – The City of Coventry Unitary Development Plan 1996-2011* P36.

⁹ Coventry City Council (2001), *The Coventry Development Plan 2001 – The City of Coventry Unitary Development Plan 1996-2011* P38.

¹⁰ Coventry City Council (2012), *Coventry Local Development Plan Core Strategy, July 2012 – Proposed Submission*.

¹¹ Coventry City Council (2009), *Delivering a More Sustainable City, Supplementary Planning Document* (adopted January 2009).

developments must aim to minimise the exposure of the public to harmful air pollutants”¹².

- 2.1.17 The saved policies of the Solihull Unitary Development Plan provide the development management framework guiding planning decision-making and taking in the borough. The Solihull Unitary Development Plan contains one key policy that directly addresses air quality, and a number of policies that, although not directly relevant, remain important considerations.
- 2.1.18 *Policy ENV15, Air Pollution*, is the principal policy in relation to air quality. The policy advises that development that would “contribute to air pollution, either directly through emissions or indirectly through emissions from traffic generated will be permitted only if it would not hinder or significantly harm the achievement of national air quality objectives or any relevant AQMP, and it incorporates appropriate attenuation, mitigation or compensatory measures”¹³.
- 2.1.19 SMBC submitted the ‘*Solihull Draft Local Plan: Shaping a Sustainable Future*’ to the Secretary of State for examination on 14 September 2012. The hearing sessions for the examination are due to start during 2013. Once adopted, the local plan will replace the majority of the saved policies of the adopted plan.
- 2.1.20 *Policy P14, Amenity*, will only permit development that protects and enhances the amenity of existing and proposed occupiers and expects developers to consider the visual and other amenity impacts of their proposals. The policy advises that development that would contribute to air pollution would only be permitted if it would not hinder the achievement of national air quality targets and it would incorporate adequate mitigation measures.

¹² Coventry City Council (2009), *Delivering a More Sustainable City, Supplementary Planning Document* (adopted January 2009) P30.

¹³ Solihull Metropolitan Borough Council (2006), *Solihull Unitary Development Plan 2006 – Written Statement* P77.

3 Baseline air quality data

3.1 Existing air quality

Local authority review and assessment information

- 3.1.1 Under Part IV of the Environment Act 1995, all local authorities are responsible for local air quality management (LAQM). Under the LAQM regime, a local authority is required to undertake regular review and assessment of local air quality, the findings of which are reviewed by the Department for Environment, Food and Rural Affairs (Defra) prior to publication.
- 3.1.2 If an area is identified as being unlikely to achieve an air quality standard and there are sensitive receptors to be exposed over the relevant exposure period, then the local authority is required to designate an AQMA and develop an AQAP to improve local air quality.
- 3.1.3 There are three AQMAs within the Stoneleigh, Kenilworth and Burton Green area, shown in Volume 5, Map AQ-01-018. These AQMAs are within the WDC and CCC administrative areas. Currently there are no AQMAs within the SMBC area.
- 3.1.4 WDC has currently designated five AQMAs. Of these five AQMAs two are within the Stoneleigh, Kenilworth and Burton Green area. These AQMAs are both in Kenilworth, 1.8km and 2.6km south-west of the centre line of the Proposed Scheme. The AQMAs have been declared because nitrogen dioxide (NO₂) concentrations exceed the annual mean air quality standard. An AQAP¹⁴ has been developed by WDC with the aim to improve local air quality in the designated AQMAs. The AQAP contains a number of predominantly transport-related actions to reduce vehicle-derived emissions, and includes the promotion of rail and other public transport measures to reduce emissions and improve local air quality conditions.
- 3.1.5 CCC has declared a city-wide AQMA as there are several areas likely to exceed the air quality standards for annual mean nitrogen dioxide. The south-western boundary of the city-wide AQMA is approximately 400m north-east of the centre line of the Proposed Scheme. The AQAP for Coventry¹⁵ includes specific measures to reduce bus traffic in the city centre as well as tackling wider issues such as reducing vehicle emissions, improving public transport, improved efficiency of highway networks, alternative transport modes and policies and non-transport measures.

Local air quality monitoring data

- 3.1.6 Monitoring sites within the study area that are considered relevant for this assessment are shown in Volume 5, Map AQ-01-018. The following sections provide a summary of the recorded pollutant concentrations at these sites.
- 3.1.7 The pollutant concentrations can be compared to the air quality standards:
- 40µg/m³ as an annual mean for NO₂ and PM₁₀;

¹⁴ Warwick District Council (2008), *Air Quality Action Plan*, 2008.

¹⁵ Coventry City Council (2007), *The Air Quality Action Plan for Coventry*, 2007.

- 200µg/m³ one-hour mean for NO₂ not to be exceeded more than 18 times a year (equivalent to the 99.8th percentile of the one-hour mean);
- 50µg/m³ 24-hour mean for PM₁₀ not to be exceeded more than 35 times a year (equivalent to the 90.4th percentile of the 24-hour mean); and
- 25µg/m³ as an annual mean for PM_{2.5}.

Continuous monitoring

- 3.1.8 This section summarises the results from the continuous monitoring sites that are considered relevant for the assessment of air quality in this study area.
- 3.1.9 There is one continuous air quality monitoring site within the Stoneleigh, Kenilworth and Burton Green area.
- 3.1.10 This site is located in Coventry and is operated as part of the automatic urban and rural network (AURN) operated in association with Defra. This site, which is located at an urban background location in Coventry Memorial Park, south-west of Coventry city centre, is 4.4 km north-east of the centre line of the Proposed Scheme. The pollutants measured include nitrogen dioxide (NO₂) and particulate matter (PM₁₀ and PM_{2.5}).
- 3.1.11 This monitoring site is not considered to be representative of air quality conditions in the area immediately surrounding the Proposed Scheme. This is because it is over 4km away from the section of the Proposed Scheme within the Stoneleigh, Kenilworth and Burton Green area and is not located in the rural areas where the Proposed Scheme will be predominantly situated. However this site is useful to illustrate trends in concentrations.
- 3.1.12 Annual mean data for NO₂, PM₁₀ and PM_{2.5} for this site are presented in Table 1. Hourly mean data for NO₂ are presented in Table 2. Daily mean data for PM₁₀ are presented in Table 3.

Table 1: Annual mean pollutant concentrations recorded at continuous monitoring sites^{16, 17}

Pollutant	Annual mean concentrations (µg/m ³)				
	2008	2009	2010	2011	2012
CCC – Coventry Memorial Park (grid reference 432786, 277484)					
NO ₂	19	17	21	17	19
PM ₁₀	18 ^a	Closed	Closed	Closed	Closed
PM _{2.5}	Closed	13 ^a	12 ^a	n/a	n/a

¹⁶ Data source: Defra; Automatic Urban and Rural Network (AURN); <http://uk-air.defra.gov.uk/networks/network-info?view=aurn>; Accessed: July 2013.

¹⁷ Notes for Table 1: Air quality standard for NO₂ and PM₁₀ is 40µg/m³ expressed as an annual mean. Air quality standard for PM_{2.5} is 25µg/m³ expressed as an annual mean. ^a Measured using Tapered Element Oscillating Microbalance (TEOM) method corrected to gravimetric equivalent using Volatile Correction Model. Closed indicates that monitoring was not undertaken in that year, n/a indicates insufficient data capture at less than 75%.

Table 2: Number of hours when hourly average NO₂ concentrations exceed 200µg/m³ at continuous monitoring sites^{18, 19}

Site	Number of exceedances of hourly mean NO ₂ standard				
	2008	2009	2010	2011	2012
CCC: Coventry Memorial Park	0 (111)	0 (90)	0 (88)	0 (90)	0 (80)

Table 3: Number of days when daily mean PM₁₀ concentrations exceed 50µg/m³ at continuous monitoring sites^{20, 21}

Site	Number of exceedances of daily mean PM ₁₀ standard				
	2008	2009	2010	2011	2012
CCC: Coventry Memorial Park	6 ^a	Closed	Closed	Closed	Closed

3.1.13 The available monitoring data indicate that concentrations are below the relevant annual mean air quality standard for NO₂ and particulate matter at urban background locations. There is no clear increasing or decreasing trends in monitored concentrations over the 2008 to 2012 period.

3.1.14 The area through which the Proposed Scheme will pass is considerably less developed and on this basis concentrations are expected to be below the relevant air quality standards.

Diffusion tubes

3.1.15 This section summarises the results from the diffusion tube sites that are considered relevant for the assessment of air quality in this study area.

3.1.16 WDC measures annual mean NO₂ concentrations using a network of 57 passive diffusion tubes located across its administrative area. There are four diffusion tube monitoring sites are in Kenilworth, approximately 2 km south-west of the centreline of the Proposed Scheme. The concentrations recorded by these diffusion tubes are presented in Table 4. The diffusion tubes are located at roadside sites and the majority of the sites have recorded exceedances of the annual mean NO₂ air quality standard in one of the years in the 2008 to 2012 period. The concentrations in the area surrounding the Proposed Scheme are likely to be lower given the mostly rural area. However the sites are useful to illustrate trends in concentrations. This indicates that there appears to be no increasing or decreasing trends in monitored concentrations over the 2008 to 2012 period.

¹⁸ Data Source: Defra; Automatic Urban and Rural Network (AURN); <http://uk-air.defra.gov.uk/networks/network-info?view=aurn>; Accessed: July 2013.

¹⁹ Notes for Table 2: Air quality standard for NO₂ allows for no more than 18 exceedances of 200µg/m³, expressed as an hourly mean. 99.8th percentile of hourly average NO₂ concentrations (in brackets) where available).

²⁰ Data source: Defra; Automatic Urban and Rural Network (AURN); <http://uk-air.defra.gov.uk/networks/network-info?view=aurn>; Accessed: July 2013.

²¹ Notes for Table 3: Air quality standard for PM₁₀ allows for no more than 35 exceedances of 50µg/m³, expressed as a daily mean. ^a Measured using Tapered Element Oscillating Microbalance (TEOM) method corrected to gravimetric equivalent using Volatile Correction Model. Closed indicates that monitoring was not undertaken in that year, n/a indicates insufficient data capture at less than 75%.

Table 4: Annual mean NO₂ concentrations recorded at diffusion tube monitoring sites^{22,23}

Site	Coordinates	Annual mean NO ₂ concentrations (µg/m ³)				
		2008	2009	2010	2011	2012
New Street 3	428750, 272612	35	40	38	34	29
New Street 2	428733, 272578	23	32	30	26	33
New Street 1	428707, 272556	22	25	24	23	41
Field Gate Lane	428652, 272524	33	39	42	39	25

3.1.17 The 96 diffusion tubes within the CCC area are mainly within the city centre, the nearest site being 4.4km north-east of the Proposed Scheme. Therefore, these sites are not considered relevant to this assessment and are not presented here.

3.1.18 SMBC undertook diffusion tube monitoring at five locations until 2012, but none of the sites are within the Stoneleigh, Kenilworth and Burton Green area.

Background pollutant concentrations

3.1.19 Estimates of background air quality have been obtained from Defra for 2011 and future years (2017 and 2026)²⁴. These data are estimated for 1km grid squares for nitrogen oxides (NO_x), NO₂, PM₁₀ and PM_{2.5}. NO₂ annual mean concentrations ranged from 13µg/m³ to 19µg/m³ in 2012, PM₁₀ annual mean concentrations ranged from 14µg/m³ to 17µg/m³ in 2012 and PM_{2.5} annual mean concentrations ranged from 10µg/m³ to 12µg/m³ in 2012. Average pollutant concentrations are below the relevant air quality standards.

3.1.20 While the continuous monitoring and diffusion tube sites can be used to indicate trends in concentrations they are not considered to be representative of the predominantly rural area through which the Proposed Scheme will pass within the study area. On this basis the Defra background concentrations maps have been used to characterise the baseline air quality for the study area. These maps indicate the average background pollutant concentrations across the Stoneleigh, Kenilworth and Burton Green area are below the relevant air quality standards.

Local emission sources

3.1.21 The main source of emissions of NO_x and PM₁₀ in the study area are road traffic emissions²⁵ from the A46 and the A429 which will be crossed by the Proposed Scheme within the study area. There is a number of permitted Part A industrial processes²⁶. These are a landfill operation near Baginton, approximately 3.2km north-east of the centre line of Proposed Scheme; and a sewage treatment works at Finham, 2km north-east of the centre line of the Proposed Scheme. Due to the nature of the emissions from these Part A processes, it is unlikely that these will have an effect on

²² Data Source: Warwick District Council (2013), *Warwick 2013 Progress Report*.

²³ Notes for Table 4: Air quality standard for NO₂ is 40µg/m³ expressed as an annual mean.

²⁴ Department for Environment, Food and Rural Affairs; Background Maps; <http://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html>; Accessed: July 2013.

²⁵ Warwick District Council (2013), *Warwick 2013 Progress Report*.

²⁶ Identified from Environment Agency; What's in your backyard website; <http://www.environment-agency.gov.uk/default.aspx>; accessed July 2013. A Part A process is an industrial operation requiring a permit to operate from the Environment Agency under the Environmental Permitting regime, and as such is considered a significant source of pollution.

local air quality within the Stoneleigh, Kenilworth and Burton Green area. Contributions to local pollutant concentrations made by these industrial installations are included within background concentrations used in the assessment.

3.2 Receptors

Human

- 3.2.1 Human receptors which are considered to be susceptible to changes in air quality due to construction or operation of the proposed scheme have been identified.

Construction phase

- 3.2.2 Human receptors that could potentially be affected by the construction phase of the Proposed Scheme are shown in Volume 5: Map AQ-02-018-01, Map AQ-02-018-02 Map AQ-02-018-03 and Map AQ-02-018-04 for receptors relevant to the construction dust assessment and Volume 5: Map AQ-01-018 for receptors relevant to the construction traffic emissions assessment. These include:

- properties along A445 Leicester Lane, south-west of Proposed Scheme
- properties along A445 Leicester Lane, north-east of Proposed Scheme;
- properties along B4113 Stoneleigh Road, Stoneleigh Park;
- properties adjacent to A46 Kenilworth Bypass;
- properties along Dalehouse Lane, Kenilworth;
- Dalehouse Farm, Dalehouse Lane, Kenilworth;
- Milburn Grange, A429 Kenilworth Road, Kenilworth;
- properties along A429 Kenilworth Road, north-east of Proposed Scheme;
- properties along A429 Kenilworth Road, Crackley, south-west of Proposed Scheme;
- Birches Wood Farm, Crackley Lane, Kenilworth;
- Burton Green Primary School, Hobs Lane;
- properties in Burton Green along Red Lane, Cromwell Lane and Hodgetts Lane; and
- properties along B4101 Waste Lane, Balsall Common.

Operational phase

- 3.2.3 Human receptors that could potentially be affected by the operation of the Proposed Scheme are shown in Volume 5: Map AQ-01-018. These include:

- properties along A445 Leicester Lane;
- properties along B4113 Stoneleigh Road, Stoneleigh Park;
- properties along A429 Kenilworth Road, Crackley; and
- Birches Wood Farm, Crackley Lane, Kenilworth.

Ecological

Construction phase

3.2.4 There are no ecological receptors with statutory designations within the Stoneleigh, Kenilworth and Burton Green area. There are six sites with non-statutory local wildlife site (LWS) or local nature reserve (LNR) designations within the Stoneleigh, Kenilworth and Burton Green area that could potentially be affected by changes in air quality as a result of the dust-generating construction activities associated with the Proposed Scheme. These sites are:

- River Avon LWS, north of Stoneleigh Park;
- Kenilworth Road Spinney LNR and LWS, adjacent to the A429 Kenilworth Road;
- Broadwells Wood LWS, south-east of Burton Green;
- Black Waste Wood LWS, south-east of Cromwell Lane;
- Big Poors and Little Poors Wood LWS, north-west of Cromwell Lane; and
- Beanit Farm Hedge LWS, south of B4101 Waste Lane.

Operational phase

3.2.5 No ecological receptors with a statutory designation or non-statutory designation that could potentially be affected by the operation of the Proposed Scheme have been identified within the Stoneleigh, Kenilworth and Burton Green area.

4 Dust impact evaluation and risk rating

- 4.1.1 The following tables provide details of the assessment of construction impacts following the Institute of Air Quality Management guidance²⁷. Where considered useful to identify receptors and their relationship to the construction activity, a specific figure is provided.
- 4.1.2 The construction activities considered were the construction of new structures; earthworks, including the movement of materials on the haul road along the line of the Proposed Scheme; and dust and mud deposited onto public highways from vehicles travelling to and from construction areas (referred to as trackout in the IAQM guidance).

Table 5: Evaluation and risk rating of construction activities

Activity	Distance to nearest receptor	Dust emission class	Dust risk category	Sensitivity of surrounding area	Magnitude of impact (with CoCP mitigation measures)	Principal justifications
Properties along A445 Leicester Lane, south-west of Proposed Scheme (Map AQ-02-018-01 Figure 18.1)						
Demolition	n/a	n/a	n/a	Low	n/a	No demolition within 350m
Earthworks	Less than 20m	Large	High	High	Slight adverse	Properties 10m from earthworks. Properties more than 100m from haul road Total area of earthworks greater than 10,000m ² More than 10 heavy earth moving vehicles on haul road per day Baseline PM ₁₀ concentrations less than 75% of air quality standard Duration of earthworks expected to be more than 12 months
Construction	Less than 20m	Large	High	High	Slight adverse	Properties 10m from construction Total volume of construction greater than 100,000m ³ Baseline PM ₁₀ concentrations less than 75% of air quality standard Duration of construction expected to be more than 12 months

²⁷ IAQM (2012), *Guidance on the assessment of the impacts of construction on air quality and the determination of their significance*.

Activity	Distance to nearest receptor	Dust emission class	Dust risk category	Sensitivity of surrounding area	Magnitude of impact (with CoCP mitigation measures)	Principal justifications
Trackout	Less than 20m	Medium	High	High	Negligible	Properties 10m from trackout route 25-100 HDV trips per day Baseline PM ₁₀ concentrations less than 75% of air quality standard Duration of trackout expected to be more than 12 months
Properties along A445 Leicester Lane, north-east of Proposed Scheme (Map AQ-02-018-01 Figure 18.2)						
Demolition	n/a	n/a	n/a	n/a	n/a	No demolition within 350m
Earthworks	20m-50m	Large	High	Low	Negligible	Properties more than 20m from earthworks. Properties more than 100m from haul road More than 10 heavy earth moving vehicles on haul road per day Total area of earthworks greater than 10,000m ² Baseline PM ₁₀ concentrations less than 75% of air quality standard Duration of earthworks expected to be more than 12 months
Construction	20m-50m	Large	High	Low	Negligible	Properties more than 20m from construction Total volume of construction greater than 100,000m ³ Baseline PM ₁₀ concentrations less than 75% of air quality standard Duration of construction expected to be more than 12 months
Trackout	20m-50m	Medium	Medium	Low	Negligible	Properties more than 20m from trackout route 25-100 HDV trips per day Baseline PM ₁₀ concentrations less than 75% of air quality standard Duration of trackout expected to be more than 12 months

Activity	Distance to nearest receptor	Dust emission class	Dust risk category	Sensitivity of surrounding area	Magnitude of impact (with CoCP mitigation measures)	Principal justifications
Properties along B4113 Stoneleigh Road, Stoneleigh Park (Map AQ-02-018-01 Figure 18.3)						
Demolition	20m-100m	Large	High	Low	Negligible	<p>Properties more than 20m from demolition</p> <p>Total volume of demolition greater than 50,000m³</p> <p>Baseline PM₁₀ concentrations less than 75% of air quality standard</p> <p>Duration of demolition expected to be more than 12 months</p>
Earthworks	20m-50m	Large	High	Low	Negligible	<p>Properties more than 20m from earthworks and haul road</p> <p>Total area of earthworks greater than 10,000m²</p> <p>More than 10 heavy earth moving vehicles on haul road per day</p> <p>Baseline PM₁₀ concentrations less than 75% of air quality standard</p> <p>Duration of earthworks expected to be more than 12 months</p>
Construction	20m-50m	Large	High	Low	Negligible	<p>Properties more than 20m from construction</p> <p>Total volume of construction greater than 100,000m³</p> <p>Baseline PM₁₀ concentrations less than 75% of air quality standard</p> <p>Duration of construction expected to be more than 12 months</p>
Trackout	50m-100m	Medium	Low	Low	Negligible	<p>Properties more than 50m from trackout route</p> <p>25-100 HDV trips per day</p> <p>Baseline PM₁₀ concentrations less than 75% of air quality standard</p> <p>Duration of trackout expected to be more than 12 months</p>

Activity	Distance to nearest receptor	Dust emission class	Dust risk category	Sensitivity of surrounding area	Magnitude of impact (with CoCP mitigation measures)	Principal justifications
Properties adjacent to A46 Kenilworth Bypass, Kenilworth (Map AQ-02-018-01 Figure 18.4)						
Demolition	200m-350m	Large	Medium	Low	Negligible	<p>Properties more than 200m from demolition</p> <p>Total volume of demolition greater than 50,000m³</p> <p>Baseline PM₁₀ concentrations less than 75% of air quality standard</p> <p>Duration of demolition expected to be more than 12 months</p>
Earthworks	100m-200m	Large	Medium	Low	Negligible	<p>Properties more than 100m from earthworks and haul road</p> <p>Total area of earthworks greater than 10,000m²</p> <p>More than 10 heavy earth moving vehicles on haul road per day</p> <p>Baseline PM₁₀ concentrations less than 75% of air quality standard</p> <p>Duration of earthworks expected to be more than 12 months</p>
Construction	100m-200m	Large	Medium	Low	Negligible	<p>Properties more than 100m from construction</p> <p>Baseline PM₁₀ concentrations less than 75% of air quality standard</p> <p>Total volume of construction greater than 100,000m³</p> <p>Duration of construction expected to be more than 12 months</p>
Trackout	n/a	n/a	n/a	n/a	n/a	Over 100m from trackout route
Properties along Dalehouse Lane, Kenilworth (Map AQ-02-018-02 Figure 18.5)						
Demolition	n/a	n/a	n/a	n/a	n/a	No demolition within 350m
Earthworks	20m-50m	Large	High	Low	Negligible	<p>Properties more than 20m from earthworks and haul road</p> <p>Total area of earthworks greater than 10,000m²</p> <p>More than 10 heavy earth moving vehicles on haul road per day</p> <p>Baseline PM₁₀ concentrations less than 75% of air quality standard</p> <p>Duration of earthworks expected to be more than 12 months</p>

Activity	Distance to nearest receptor	Dust emission class	Dust risk category	Sensitivity of surrounding area	Magnitude of impact (with CoCP mitigation measures)	Principal justifications
Construction	20m-50m	Large	High	Low	Negligible	Properties more than 20m from construction Baseline PM ₁₀ concentrations less than 75% of air quality standard Total volume of construction greater than 100,000m ³ Duration of construction expected to be more than 12 months
Trackout	20m-50m	Medium	Medium	Low	Negligible	Properties more than 20m from trackout route 25-100 HDV trips per day Baseline PM ₁₀ concentrations less than 75% of air quality standard Duration of trackout expected to be more than 12 months
Dalehouse Farm, Dalehouse Lane, Kenilworth (Map AQ-02-018-02 Figure 18.5)						
Demolition	n/a	n/a	n/a	n/a	n/a	No properties within 350m of demolition
Earthworks	20m-50m	Large	High	Low	Negligible	Properties more than 20m from earthworks and haul road Total area of earthworks greater than 10,000m ² More than 10 heavy earth moving vehicles on haul road per day Baseline PM ₁₀ concentrations less than 75% of air quality standard Duration of earthworks expected to be more than 12 months
Construction	20m-50m	Large	High	Low	Negligible	Properties more than 20m from construction Total volume of construction greater than 100,000m ³ Baseline PM ₁₀ concentrations less than 75% of air quality standard Duration of construction expected to be more than 12 months
Trackout	n/a	n/a	n/a	n/a	n/a	Over 100m from trackout route

Activity	Distance to nearest receptor	Dust emission class	Dust risk category	Sensitivity of surrounding area	Magnitude of impact (with CoCP mitigation measures)	Principal justifications
Milburn Grange, Kenilworth Road, Crackley (Map AQ-02-018-02 Figure 18.6)						
Demolition	n/a	n/a	n/a	n/a	n/a	No properties within 350m of demolition
Earthworks	Less than 20m	Large	High	High	Slight adverse	Properties 15m from haul road and 100m from earthworks Total area of earthworks greater than 10,000m ² More than 10 heavy earth moving vehicles on haul road per day Baseline PM ₁₀ concentrations less than 75% of air quality standard Duration of earthworks expected to be more than 12 months
Construction	50m-100m	Large	Medium	Low	Negligible	Properties more than 50m from construction Total volume of construction greater than 100,000m ³ Baseline PM ₁₀ concentrations less than 75% of air quality standard Duration of construction expected to be more than 12months
Trackout	n/a	n/a	n/a	n/a	n/a	Over 100m from trackout route
Properties along A429 Kenilworth Road, Crackley (Map AQ-02-018-02 Figure 18.7)						
Demolition	n/a	n/a	n/a	n/a	n/a	No properties within 350m of demolition
Earthworks	50m-100m	Large	Medium	Medium	Negligible	Properties more than 50m from earthworks and more than 100m from haul road Total area of earthworks greater than 10,000m ² More than 10 heavy earth moving vehicles on haul road per day Baseline PM ₁₀ concentrations less than 75% of air quality standard Duration of earthworks expected to be more than 12 months

Activity	Distance to nearest receptor	Dust emission class	Dust risk category	Sensitivity of surrounding area	Magnitude of impact (with CoCP mitigation measures)	Principal justifications
Construction	50m-100m	Large	Medium	Medium	Negligible	Properties more than 50m from construction Total volume of construction greater than 100,000m ³ Baseline PM ₁₀ concentrations less than 75% of air quality standard Duration of construction expected to be more than 12months
Trackout	n/a	n/a	n/a	n/a	n/a	Over 100m from trackout route
Properties along A429 Kenilworth Road, north-east of Proposed Scheme (Map AQ-02-018-02 Figure 18.8)						
Demolition	n/a	n/a	n/a	n/a	n/a	No properties within 350m of demolition
Earthworks	50m-100m	Large	Medium	Medium	Negligible	Properties more than 50m from earthworks and more than 350m from haul road Total area of earthworks greater than 10,000m ² More than 10 heavy earth moving vehicles on haul road per day Baseline PM ₁₀ concentrations less than 75% of air quality standard Duration of earthworks expected to be more than 12 months
Construction	50m-100m	Large	Medium	Medium	Negligible	Properties more than 50m from construction Total volume of construction greater than 100,000m ³ Baseline PM ₁₀ concentrations less than 75% of air quality standard Duration of construction expected to be more than 12months
Trackout	50m-100m	Medium	Low	Low	Negligible	Properties more than 50m from trackout route 25-100 HDV trips per day Baseline PM ₁₀ concentrations less than 75% of air quality standard Duration of trackout expected to be more than 12 months

Appendix AQ-001-018 | Dust impact evaluation and risk rating

Activity	Distance to nearest receptor	Dust emission class	Dust risk category	Sensitivity of surrounding area	Magnitude of impact (with CoCP mitigation measures)	Principal justifications
Birches Wood Farm, Crackley Lane (Map AQ-02-018-03 Figure 18.9)						
Demolition	n/a	n/a	n/a	n/a	n/a	No properties within 350m of demolition
Earthworks	100m-200m	Large	Medium	Low	Negligible	Properties more than 100m from earthworks and haul road Total site area of earthworks greater than 10,000m ² More than 10 heavy earth moving vehicles on haul road per day Baseline PM ₁₀ concentrations less than 75% of air quality standard Duration of earthworks expected to be more than 12months
Construction	20m-50m	Large	High	Low	Negligible	Properties more than 20m from construction Total volume of construction greater than 100,000m ³ Baseline PM ₁₀ concentrations less than 75% of air quality standard Duration of construction expected to be more than 12 months
Trackout	n/a	n/a	n/a	n/a	n/a	Over 100m from trackout route
Burton Green Primary School, Hob Lane, Burton Green (Map AQ-02-018-04 Figure 18.10)						
Demolition	n/a	n/a	n/a	n/a	n/a	No properties within 350m of demolition
Earthworks	n/a	n/a	n/a	n/a	n/a	No properties within 350m of earthworks and haul road
Construction	Less than 20m	Small	Medium	High	Negligible	School 15m from construction of replacement Burton Green village hall Total volume of construction less than 25,000m ³ Baseline PM ₁₀ concentrations less than 75% of air quality standard Duration of construction expected to be more than 12 months

Activity	Distance to nearest receptor	Dust emission class	Dust risk category	Sensitivity of surrounding area	Magnitude of impact (with CoCP mitigation measures)	Principal justifications
Trackout	Less than 20m	Medium	Medium	High	Negligible	School 15m from trackout route 25-100 HDV trips per day Baseline PM ₁₀ concentrations less than 75% of air quality standard Duration of trackout expected to be more than 12 months
Properties in Burton Green along Red Lane, Cromwell Lane and Hodgetts Lane (Map AQ-02-018-03 Figure 18.11 and Figure 18.12)						
Demolition	Less than 20m	Large	High	High	Slight adverse	Properties 16m from demolition. Total volume of demolition greater than 50,000m ³ Baseline PM ₁₀ concentrations less than 75% of air quality standard Duration of demolition expected more than 12months
Earthworks	Less than 20m	Large	High	High	Slight adverse	Properties 16m from earthworks, but more than 350m from haul road Total area of earthworks greater than 10,000m ² Baseline PM ₁₀ concentrations less than 75% of air quality standard Duration of earthworks expected to be more than 12 months
Construction	Less than 20m	Large	High	High	Slight adverse	Properties 16m from construction Total volume of construction greater than 100,000m ³ Baseline PM ₁₀ concentrations less than 75% of air quality standard Duration of construction expected to be more than 12 months
Trackout	20m-50m	Medium	Medium	Low	Negligible	Properties more than 20m from trackout route 25-100 HDV trips per day Baseline PM ₁₀ concentrations less than 75% of air quality standard Duration of trackout expected to be more than 12 months

Appendix AQ-001-018 | Dust impact evaluation and risk rating

Activity	Distance to nearest receptor	Dust emission class	Dust risk category	Sensitivity of surrounding area	Magnitude of impact (with CoCP mitigation measures)	Principal justifications
Properties along B4101 Waste Lane, Balsall Common (Map AQ-02-018-03 Figure 18.13)						
Demolition	20m-100m	Large	High	Low	Negligible	<p>Properties more than 20m from demolition</p> <p>Total volume of demolition greater than 50,000m³</p> <p>Baseline PM₁₀ concentrations less than 75% of air quality standard</p> <p>Duration of Demolition expected to be more than 12 months</p>
Earthworks	Less than 20m	Large	High	High	Slight adverse	<p>Properties 19m from earthworks, but more than 350m from haul road</p> <p>Total site area of earthworks greater than 10,000m²</p> <p>Baseline PM₁₀ concentrations less than 75% of air quality standard</p> <p>Duration of earthworks expected more than 12months</p>
Construction	Less than 20m	Large	High	High	Slight adverse	<p>Properties 19m from construction</p> <p>Total volume of construction greater than 100,000m³</p> <p>Baseline PM₁₀ concentrations less than 75% of air quality standard</p> <p>Duration of construction expected to be more than 12 months</p>
Trackout	20m-50m	Medium	Medium	Low	Negligible	<p>Properties more than 20m from trackout route</p> <p>25-100 HDV trips per day</p> <p>Baseline PM₁₀ concentrations less than 75% of air quality standard</p> <p>Duration of trackout expected to be more than 12 months</p>
River Avon LWS						
Demolition	n/a	n/a	n/a	n/a	n/a	No demolition within 350m

Activity	Distance to nearest receptor	Dust emission class	Dust risk category	Sensitivity of surrounding area	Magnitude of impact (with CoCP mitigation measures)	Principal justifications
Earthworks	Less than 20m	Large	Medium	Medium	Negligible	<p>Locally important ecological site</p> <p>Ecological receptor less than 20m from earthworks and haul road</p> <p>Total site area of earthworks greater than 10,000m²</p> <p>More than 10 heavy earth moving vehicles on haul road per day</p> <p>Baseline PM₁₀ concentrations less than 75% of air quality standard</p> <p>Duration of earthworks expected more than 12 months</p>
Construction	Less than 20m	Large	Medium	Medium	Negligible	<p>Locally important ecological site</p> <p>Ecological receptor less than 20m from construction</p> <p>Total site area of construction greater than 100,000m³</p> <p>Baseline PM₁₀ concentrations less than 75% of air quality standard</p> <p>Duration of construction expected more than 12 months</p>
Trackout	n/a	n/a	n/a	n/a	n/a	Site over 100m from trackout route
Kenilworth Road Spinney LNR and LWS						
Demolition	n/a	n/a	n/a	n/a	n/a	No demolition within 350m
Earthworks	Less than 20m	Large	Medium	Medium	Negligible	<p>Locally important ecological site</p> <p>Ecological receptor less than 20m from earthworks and haul road</p> <p>Total site area of earthworks greater than 10,000m²</p> <p>More than 10 heavy earth moving vehicles on haul road per day</p> <p>Baseline PM₁₀ concentrations less than 75% of air quality standard</p> <p>Duration of earthworks expected more than 12 months</p>

Activity	Distance to nearest receptor	Dust emission class	Dust risk category	Sensitivity of surrounding area	Magnitude of impact (with CoCP mitigation measures)	Principal justifications
Construction	Less than 20m	Large	Medium	Medium	Negligible	<p>Locally important ecological site</p> <p>Ecological receptor less than 20m from construction</p> <p>Total site area of construction s greater than 100,000m³</p> <p>Baseline PM₁₀ concentrations less than 75% of air quality standard</p> <p>Duration of construction expected more than 12 months</p>
Trackout	n/a	n/a	n/a	n/a	n/a	Site over 100m from trackout route
Broadwells Wood LWS						
Demolition	n/a	n/a	n/a	n/a	n/a	No demolition within 350m
Earthworks	Less than 20m	Large	Medium	Medium	Negligible	<p>Locally important ecological site</p> <p>Ecological receptor less than 20m from earthworks and haul road</p> <p>Total site area of earthworks greater than 10,000m²</p> <p>More than 10 heavy earth moving vehicles on haul road per day</p> <p>Baseline PM₁₀ concentrations less than 75% of air quality standard</p> <p>Duration of earthworks expected more than 12 months</p>
Construction	Less than 20m	Large	Medium	Medium	Negligible	<p>Locally important ecological site</p> <p>Ecological receptor less than 20m from construction</p> <p>Total site area of construction greater than 100,000m³</p> <p>Baseline PM₁₀ concentrations less than 75% of air quality standard</p> <p>Duration of construction expected more than 12 months</p>
Trackout	n/a	n/a	n/a	n/a	n/a	Site over 100m from trackout route

Activity	Distance to nearest receptor	Dust emission class	Dust risk category	Sensitivity of surrounding area	Magnitude of impact (with CoCP mitigation measures)	Principal justifications
Black Waste Wood LWS						
Demolition	n/a	n/a	n/a	n/a	n/a	No demolition within 350m
Earthworks	Less than 20m	Large	Medium	Medium	Negligible	<p>Locally important ecological site</p> <p>Ecological receptor less than 20m from earthworks and haul road</p> <p>Total site area of earthworks greater than 10,000m²</p> <p>More than 10 heavy earth moving vehicles on haul road per day</p> <p>Baseline PM₁₀ concentrations less than 75% of air quality standard</p> <p>Duration of earthworks expected more than 12 months</p>
Construction	Less than 20m	Large	Medium	Medium	Negligible	<p>Locally important ecological site</p> <p>Ecological receptor less than 20m from construction</p> <p>Total site area of construction greater than 100,000m³</p> <p>Baseline PM₁₀ concentrations less than 75% of air quality standard</p> <p>Duration of construction expected more than 12 months</p>
Trackout	n/a	n/a	n/a	n/a	n/a	Site over 100m from trackout route
Big Pools and Little Pools Wood LWS						
Demolition	n/a	n/a	n/a	n/a	n/a	No demolition within 350m
Earthworks	Less than 20m	Large	Medium	Medium	Negligible	<p>Locally important ecological site</p> <p>Ecological receptor less than 20m from earthworks and haul road</p> <p>Total site area of earthworks greater than 10,000m²</p> <p>More than 10 heavy earth moving vehicles on haul road per day</p> <p>Baseline PM₁₀ concentrations less than 75% of air quality standard</p> <p>Duration of earthworks expected more than 12 months</p>

Activity	Distance to nearest receptor	Dust emission class	Dust risk category	Sensitivity of surrounding area	Magnitude of impact (with CoCP mitigation measures)	Principal justifications
Construction	Less than 20m	Large	Medium	Medium	Negligible	<p>Locally important ecological site</p> <p>Ecological receptor less than 20m from construction</p> <p>Total site area of construction greater than 100,000m³</p> <p>Baseline PM₁₀ concentrations less than 75% of air quality standard</p> <p>Duration of construction expected more than 12 months</p>
Trackout	n/a	n/a	n/a	n/a	n/a	Site over 100m from trackout route
Beanit Farm Hedge LWS						
Demolition	n/a	n/a	n/a	n/a	n/a	No demolition within 350m
Earthworks	Less than 20m	Large	Medium	Medium	Negligible	<p>Locally important ecological site</p> <p>Ecological receptor less than 20m from earthworks and haul road</p> <p>Total site area of earthworks greater than 10,000m²</p> <p>More than 10 heavy earth moving vehicles on haul road per day</p> <p>Baseline PM₁₀ concentrations less than 75% of air quality standard</p> <p>Duration of earthworks expected more than 12 months</p>
Construction	Less than 20m	Large	Medium	Medium	Negligible	<p>Locally important ecological site</p> <p>Ecological receptor less than 20m from construction</p> <p>Total site area of construction greater than 100,000m³</p> <p>Baseline PM₁₀ concentrations less than 75% of air quality standard</p> <p>Duration of construction expected more than 12 months</p>
Trackout	n/a	n/a	n/a	n/a	n/a	Site over 100m from trackout route

Table 6: Summary of construction dust impacts and effects

Location	Magnitude of impact (with CoCP mitigation measures)	Effect of dust-generating activities	Additional mitigation
Properties along A445 Leicester Lane, south-west of Proposed Scheme	Slight adverse	Not significant	None required
Properties along A445 Leicester Lane, north-east of Proposed Scheme	Negligible	Not significant	None required
Properties along B4113 Stoneleigh Road, Stoneleigh Park	Negligible	Not significant	None required
Properties adjacent to A46 Kenilworth Bypass along Dalehouse Lane, Kenilworth	Negligible	Not significant	None required
Properties along Dalehouse Lane, Kenilworth	Negligible	Not significant	None required
Dalehouse Farm, Dalehouse Lane, Kenilworth	Negligible	Not significant	None required
Milburn Grange, A429 Kenilworth Road, Kenilworth	Slight adverse	Not significant	None required
Properties along A429 Kenilworth Road, Crackley	Negligible	Not significant	None required
Properties along A429 Kenilworth Road, Coventry, north-east of Proposed Scheme	Negligible	Not significant	None required
Birches Wood Farm, Crackley Lane, Kenilworth	Negligible	Not significant	None required
Burton Green Primary School	Negligible	Not significant	None required
Properties in Burton Green along Red Lane, Cromwell Lane and Hodgetts Lane	Slight adverse	Not significant	None required
Properties along B4101 Waste Lane, Balsall Common	Slight adverse	Not significant	None required
River Avon LWS	Negligible	Not significant	None required
Kenilworth Road Spinney LNR and LWS	Negligible	Not significant	None required
Broadwells Wood LWS	Negligible	Not significant	None required
Black Waste Wood LWS	Negligible	Not significant	None required
Big Poors and Little Poors Wood LWS	Negligible	Not significant	None required
Beanit Farm Hedge LWS	Negligible	Not significant	None required

5 Air quality assessment – road traffic

5.1 Overall assessment approach

- 5.1.1 The air quality assessment for road related emissions has used three different approaches based on the scale of changes in traffic and road alignment. Where the Design Manual for Roads and Bridges²⁸ (DMRB) thresholds detailed in the SMR (Volume 5 Appendix CT-001-000/1) will not be exceeded, any additional assessment is not required as the air quality impacts will be minimal. If these thresholds are breached, then an assessment has been carried out.
- 5.1.2 If it is considered unlikely that air quality standards will be exceeded and the road configuration is a simple one, then the DMRB screening method has been used to predict changes in air quality. Where there will be a risk of standards being exceeded, where the road layout is considered to be complex or where the use of the DMRB screening method has indicated that there will be a potential exceedance of air quality standards, then the atmospheric dispersion model ADMS-Roads has been used for the assessment. Professional judgment has been used to select the appropriate tool for each area.
- 5.1.3 In this study area the DMRB screening method was considered to be a suitable tool for the assessment, as baseline air quality will be below air quality standards, there is a simple road layout and there are limited numbers of receptors close to roads affected during construction and operation of the Proposed Scheme.

5.2 Construction traffic model

- 5.2.1 Construction traffic data used in this assessment are detailed in Volume 5: Appendix TR-001-000. The construction scenario used traffic data from the year of maximum intensity of construction (2021) but assumed this would occur in the first year of construction (2017).
- 5.2.2 Screening using the DMRB traffic and road alignment change criteria was undertaken to determine locations requiring assessment. Six locations within the Stoneleigh, Kenilworth and Burton Green area met the criteria for assessment of change in traffic emissions during the construction phase. The predicted increase in construction traffic on the A46 Kenilworth Bypass, A45 in Coventry, A429 Kenilworth Road, A429 Coventry Road and B4101 Waste Lane was sufficient to require assessment of changes in air quality at receptors around these roads. In addition the proposed temporary road realignment on Cromwell Lane gave rise to the requirement for assessment at receptors around this road. No locations were identified as requiring assessment due to construction traffic movements on the haul road.

Receptors assessed

- 5.2.3 For locations where DMRB traffic and road alignment change criteria for local air quality were met, a number of receptors representative of worst-case exposure locations were selected for quantitative assessment. These included locations

²⁸ Highways Agency (2007), *The Design Manual for Roads and Bridges (Volume 11, Section 3, Part 1 Air Quality HA207/07)*.

representative of highest concentrations along the roads, including closest to junctions or to the road itself. Receptors assessed are listed in Table 7 and shown in Volume 5: Map AQ-01-018.

Table 7: Modelled receptors (construction phase)

Receptor	Description/Location	Ordnance Survey coordinates
18-1	Hope Barn, Dalehouse Lane, Kenilworth (adjacent to A46 Kenilworth Bypass)	431574,273030
18-2	Kingswood Barn, Dalehouse Lane, Kenilworth (adjacent to A46 Kenilworth Bypass)	431573,273046
18-3	Kingswood Farm House, Dalehouse Lane, Kenilworth (adjacent to A46 Kenilworth Bypass)	431627,273053
18-4	162 Kenilworth Road, Coventry	430373,274391
18-5	428 Cromwell Lane, Burton Green, Kenilworth	426823,275763
18-6	408 Cromwell lane, Burton Green, Kenilworth	426867,275869
18-7	402 Cromwell Lane, Burton Green, Kenilworth	426891,275959
18-8	Maple Field House, Little Beanit Farm, Waste Lane, Balsall Common, Coventry	425803,276595

Background concentrations

5.2.4 The background concentrations used in the assessment are shown in Table 8 taken from the Defra Maps.

Table 8: Background 2017 concentrations at assessed receptors

Receptor (or zone of receptors)	Concentrations ($\mu\text{g}/\text{m}^3$)		
	NO _x	NO ₂	PM ₁₀
18-1 (Hope Barn)	20.7	14.7	15.8
18-2 (Kingswood Barn)	20.7	14.7	15.8
18-3 (Kingswood Farm House)	20.7	14.7	15.8
18-4 (162 Kenilworth Road)	20.7	14.7	15.8
18-5 (428 Cromwell Lane)	18.1	13.0	14.8
18-6 (408 Cromwell Lane)	16.0	11.6	14.0
18-7 (402 Cromwell Lane)	16.0	11.6	14.0
18-8 (Maple Field House, Little Beanit Farm)	16.0	11.6	14.0

DMRB model results

5.2.5 This section provides the summary of the modelled pollutant concentrations for the assessed receptors. The magnitude of change and impact descriptor is also derived following the Environmental Protection UK (EPUK) methodology²⁹.

²⁹ Environmental Protection UK (EPUK) (2010), *Development Control: Planning for Air Quality*.

Table 9: Summary of DMRB annual mean NO₂ results (construction phase)

Receptor	Concentrations (µg/m ³)			Change in concentrations (µg/m ³)	Magnitude of change	Impact descriptor
	2012 baseline	2017 without Proposed Scheme	2017 with Proposed Scheme			
18-1 (Hope Barn)	18.5	15.0	15.1	0.1	Imperceptible	Negligible
18-2 (Kingswood Barn)	18.4	15.0	15.0	0.0	Imperceptible	Negligible
18-3 (Kingswood Farm House)	18.7	15.2	15.3	0.1	Imperceptible	Negligible
18-4 (162 Kenilworth Road)	16.5	13.8	13.7	-0.1	Imperceptible	Negligible
18-5 (428 Cromwell Lane)	15.3	12.7	12.9	0.2	Imperceptible	Negligible
18-6 (408 Cromwell Lane)	15.5	12.9	13.1	0.2	Imperceptible	Negligible
18-7 (402 Cromwell Lane)	15.5	12.9	13.1	0.2	Imperceptible	Negligible
18-8 (Maple Field House, Little Beanit Farm)	16.0	13.4	13.7	0.3	Imperceptible	Negligible

Table 10: Summary of DMRB annual mean PM₁₀ results (construction phase)

Receptor	Concentrations (µg/m ³)			Change in concentrations (µg/m ³)	Magnitude of change	Impact descriptor
	2012 baseline	2017 without Proposed Scheme	2017 with Proposed Scheme			
18-1 (Hope Barn)	16.8	15.9	15.9	0.0	Imperceptible	Negligible
18-2 (Kingswood Barn)	16.8	15.9	15.9	0.0	Imperceptible	Negligible
18-3 (Kingswood Farm House)	16.8	15.9	15.9	0.0	Imperceptible	Negligible
18-4 (162 Kenilworth Road)	15.7	14.9	14.9	0.0	Imperceptible	Negligible
18-5 (428 Cromwell Lane)	15.0	14.2	14.3	0.1	Imperceptible	Negligible
18-6 (408 Cromwell Lane)	15.1	14.3	14.3	0.0	Imperceptible	Negligible
18-7 (402 Cromwell Lane)	15.1	14.3	14.3	0.0	Imperceptible	Negligible
18-8 (Maple Field House, Little Beanit Farm)	14.8	14.0	14.1	0.1	Imperceptible	Negligible

5.2.6 Annual mean NO₂ and PM₁₀ concentrations will be below the air quality standards both with and without the Proposed Scheme for the construction phase. The hourly mean NO₂ air quality standard will also be met as annual mean NO₂ concentrations will be well below 60µg/m³. In addition the daily mean PM₁₀ air quality standard will also be met. It is not possible to model PM_{2.5} using the DMRB screening model, but given the PM₁₀ concentrations, the annual mean PM_{2.5} concentrations will be below the air quality standard.

5.2.7 Changes in modelled concentrations with and without the Proposed Scheme have been calculated to determine the impact to local air quality. The change in NO₂ and PM₁₀ concentrations is imperceptible at all receptors. The magnitude of impact will be negligible at all receptors for NO₂ and PM₁₀.

- 5.2.8 In certain instances additional qualitative assessment has been undertaken. This was the case for the A45 in Coventry and A429 Coventry Road, which were identified as meeting the criteria for assessment due to an increase in construction traffic. The qualitative assessment concluded that the magnitude of impact for NO₂ and PM₁₀ is expected to be negligible at receptors along both these roads. The expected magnitude of impact has been determined on the basis of the magnitude of construction traffic increases, the baseline air quality is below air quality standards, the distance to the receptors from the roads and the existing traffic flows on the construction traffic routes.

Assessment of significance

- 5.2.9 Considering the significance of the air quality impacts according to the criteria set in the EPUK methodology²⁹, the following points are noted:
- the magnitude of impact is negligible for NO₂ and PM₁₀ at all receptors; and
 - pollutant concentrations are well below the air quality standards for both NO₂ and PM₁₀ with and without the Proposed Scheme.
- 5.2.10 Based on the above, the effect on air quality due to construction traffic emission will not be significant

5.3 Operational traffic model

- 5.3.1 Operational traffic data used in this assessment are detailed in Volume 5: Appendix TR-001-000. The operational scenario used traffic data from the first year of opening of the Proposed Scheme (2026).
- 5.3.2 Screening using the DMRB traffic and road alignment change criteria was undertaken to determine locations requiring assessment. Six locations within the Stoneleigh, Kenilworth and Burton Green area met the criteria for assessment of emissions from traffic during the operational stage, following completion of the Proposed Scheme. These locations were the A445 Leicester Lane; the B4113 Stoneleigh Road, Stoneleigh Park; Dalehouse Lane, Kenilworth; the A429 Kenilworth Road, Crackley; Crackley Lane, Kenilworth; and B4101 Waste Lane, Balsall Common. There will be permanent road realignments at all these locations which required assessment of changes in concentrations at receptors around these roads.

Receptors assessed

- 5.3.3 For locations where DMRB traffic and road alignment change criteria for local air quality were met, a number of receptors representative of worst-case exposure locations were selected for quantitative assessment. These included locations representative of highest concentrations along the roads, including closest to junctions or to the road itself. Receptors assessed are listed in Table 11 and shown in Volume 5: Map AQ-01-018.

Table 11: Modelled receptors (operational phase)

Receptor	Description/Location	Ordnance Survey coordinates
18-9	Heathfield, Leicester Lane, Cubbington, Leamington Spa	433834,270037
18-10	3 Furzen Hill Cottages, Leicester Lane, Cubbington, Leamington Spa	434120,270323

Receptor	Description/Location	Ordnance Survey coordinates
18-11	East Lodge, Stoneleigh Park, Kenilworth	432928,271282
18-12	The Dalehouse, Dalehouse Lane, Kenilworth	430916,273269
18-13	Four Winds, Dalehouse Lane, Kenilworth	431240,273280
18-4	162 Kenilworth road, Coventry	430373,274391
18-14	Birches Wood, Crackley Lane, Kenilworth	428867,274401
18-8	Maple Field House, Little Beanit Farm, Waste Lane, Balsall Common, Coventry	425803,276595

Background concentrations

5.3.4 The background concentrations used in the assessment are shown Table 12 taken from the Defra maps.

Table 12: Background 2026 concentrations at assessed receptors

Receptor (or zone of receptors)	Concentrations ($\mu\text{g}/\text{m}^3$)		
	NO _x	NO ₂	PM ₁₀
18-9(Heathfield)	11.9	8.9	14.0
18-10(3 Furzen Hill Cottages)	11.9	8.9	14.2
18-11(East Lodge)	13.0	9.7	13.4
18-12 (The Dalehouse)	15.5	11.4	15.1
18-13 (Four Winds)	15.5	11.4	15.1
18-4(162 Kenilworth Road)	14.0	10.4	14.1
18-14(Birches Wood)	13.7	10.1	14.4
18-8(Maple Field House, Little Beanit Farm)	13.8	10.2	13.3

DMRB model results

5.3.5 This section provides the summary of the modelled pollutant concentrations for the assessed receptors. The magnitude of change and impact descriptor is also derived following the Environmental Protection UK (EPUK) methodology²⁹.

Table 13: Summary of DMRB annual mean NO₂ results (operational phase)

Receptor	Concentrations ($\mu\text{g}/\text{m}^3$)		Change in concentrations ($\mu\text{g}/\text{m}^3$)	Magnitude of change	Impact descriptor
	2026 without Proposed Scheme	2026 with Proposed Scheme			
18-9 (Heathfield)	11.8	10.1	-1.7	Small decrease	Negligible
18-10 (3 Furzen Hill Cottages)	12.8	9.5	-3.3	Medium decrease	Negligible
18-11 (East Lodge)	10.8	10.1	-0.7	Small decrease	Negligible
18-12 (The Dalehouse)	12.5	12.5	0.0	Imperceptible	Negligible
18-13 (Four Winds)	12.5	12.4	-0.1	Imperceptible	Negligible
18-4 (162 Kenilworth Road)	10.8	10.8	0.0	Imperceptible	Negligible
18-14 (Birches Wood)	10.5	10.5	0.0	Imperceptible	Negligible

Receptor	Concentrations ($\mu\text{g}/\text{m}^3$)		Change in concentrations ($\mu\text{g}/\text{m}^3$)	Magnitude of change	Impact descriptor
	2026 without Proposed Scheme	2026 with Proposed Scheme			
18-8 (Maple Field House, Little Beanit Farm)	10.6	10.5	-0.1	Imperceptible	Negligible

Table 14: Summary of DMRB annual mean PM₁₀ results (operational phase)

Receptor	Concentrations ($\mu\text{g}/\text{m}^3$)		Change in concentrations ($\mu\text{g}/\text{m}^3$)	Magnitude of change	Impact descriptor
	2026 without Proposed Scheme	2026 with Proposed Scheme			
18-9 (Heathfield)	14.5	14.2	-0.3	Imperceptible	Negligible
18-10 (3 Furzen Hill Cottages)	14.9	14.3	-0.6	Small decrease	Negligible
18-11 (East Lodge)	13.7	13.5	-0.2	Imperceptible	Negligible
18-12 (The Dalehouse)	15.3	15.3	0.0	Imperceptible	Negligible
18-13 (Four Winds)	15.3	15.3	0.0	Imperceptible	Negligible
18-4 (162 Kenilworth Road)	14.2	14.2	0.0	Imperceptible	Negligible
18-14 (Birches Wood)	14.5	14.5	0.0	Imperceptible	Negligible
18-8 (Maple Field House, Little Beanit Farm)	13.4	13.3	-0.1	Imperceptible	Negligible

- 5.3.6 Annual mean NO₂ and PM₁₀ concentrations will be below the air quality standards both with and without the Proposed Scheme for the operation phase. The hourly mean NO₂ air quality standard will also be met as annual mean NO₂ concentrations will be well below 60 $\mu\text{g}/\text{m}^3$. In addition the daily mean PM₁₀ air quality standard will also be met. It is not possible to model PM_{2.5} using the DMRB screening model, but given the PM₁₀ concentrations, the annual mean PM_{2.5} concentrations will be below the air quality standard.
- 5.3.7 Changes in modelled concentrations with and without the Proposed Scheme have been calculated to determine the impact to local air quality. There is a small to medium decrease in NO₂ concentrations at receptors on A445 Leicester Lane due to the realignment of the A445 Leicester Lane further away from receptors. There is also a small decrease in concentrations at East Lodge in Stoneleigh Park, due to realignment of the B4113 Stoneleigh Road further away from the receptor. At other modelled receptors the change in NO₂ is imperceptible.
- 5.3.8 The change in PM₁₀ concentrations is imperceptible at all receptors except 3 Furzen Hill Cottages on A445 Leicester Lane. At 3 Furzen Hill Cottages there is a small decrease, due to realignment of the A445 Leicester Lane further away from the receptor.
- 5.3.9 The magnitude of impact will be negligible at all receptors for NO₂ and PM₁₀.
- Assessment of significance**
- 5.3.10 Considering the significance of the air quality impacts according to the criteria set in the EPUK methodology²⁹, the following points are noted:

- the magnitude of impact is negligible for NO₂ and PM₁₀ at all receptors; and
- pollutant concentrations are well below the air quality standards for both NO₂ and PM₁₀ with and without the Proposed Scheme.

5.3.11 Based on the above, the effect on air quality due to operational traffic emissions will not be significant.

6 References

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